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10/520,613	09/08/2005	Maurizio Catello Pennarola	027419-180	9644

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EXAMINER	
SRIRAMAN, NIKHIL	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,613	PENNAROLA, MAURIZIO CATELLO	
	Examiner	Art Unit	
	NIKHIL SRIRAMAN	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/15/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is a non-final Office Action on the merits in response to the national stage application filed January 10, 2005, of the PCT filed July 10, 2003. The preliminary amendment cancelling claims 1-11 and adding claims 12-24 has been received and entered. Accordingly, claims 12-24 remain pending and are addressed below.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claims 12-21 and 22 are objected to because of the following informalities: The "for" and "able to" and "wherein" clauses incorporated in these claims introduce questions as to the limiting effect of the language immediately following and should be replaced by language that positively recites the task preformed by the claim elements. MPEP 2106(II)C This is not true where the claims recite "means for" clauses that are neither preceded by an adjective nor followed by structural language, where instead Examiner construes such language as Applicant's intent to invoke the 6th paragraph of 35 U.S.C. 112.

Claim 24, lines 1-2 recite "electronic processing means process receive information" which should either include the word "process" or "receive", but not both.

Claim Rejections – 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 12-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, line 4 recites “storing predefined information”, while line 5 recites “the received information”. That both elements include the term “information” and that the subsequent recitation of “information” is preceded by antecedent basis indicating this term has already been introduced, suggests that these elements are one in the same. However, that the “information” was merely specified in its initial recitation to be “predefined” and “stored”, while it is specified to be “received” and neither “predefined” nor “stored” in its subsequent recitation, suggest that these are distinct. Thus, the relationship between these elements introduces uncertainty regarding the claim scope.

Further regarding claim 12, lines 22-23 recite “information on the situation onboard the aircraft is stored” and line 25 recites “information generated onboard the aircraft”, where it is unclear as to how this “information” relates to the preceding “information” recited in lines 4 and 5.

Yet further regarding claim 12, line 10 recites "the aircraft onboard situation", which lacks proper antecedent basis.

Regarding claim 13, line 1 recites “said information”, where it unclear to which “information” recited in the preceding paragraph this is referring.

Regarding claim 15, line 2 recites "establishing whether they have been disabled", where it is unclear to what "they" is referring.

Regarding claim 18, line 2 recites “information”, where it unclear to which of “information” recited in the lineage of claim dependency this is referring.

Regarding claim 22, the same uncertainties regarding the term “information” apply as recited above for claim 12.

Regarding claim 23, lines 18, 20 and 22 recite "operating logic". This term is not recited anywhere in the specification, and it unclear on its face what this term is meant to convey. One possibility is that this a short-hand for the functions performed by the corresponding elements in the system claims 12 and 22. However, this term was not used in the system claims, which supports an interpretation that this term was intended to be distinct from what was claimed in claims 12 and 22. For purposes of examination, this term will be construed as the operations performed by the corresponding system claim limitations. Thus, the term "operating logic" in claim 23 renders its scope uncertain and indefinite.

Further regarding claim 23, line 29 recites “said information”, which possesses improper antecedent basis.

Yet further regarding claim 23, line 30 recites "a second alarm state", despite the absence of a "first alarm state" earlier in the claim. It is unclear if this claim was

intended to only possess one "alarm state" or if instead a "first alarm state" was inadvertently omitted.

Claim Rejections – 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turung et al. (WO 03/023322 A2).

Regarding claim 12, Turung et al. disclose an avionic system for aircraft out of route management and alarm communications comprising:

at least an avionic unit, located onboard an aircraft (Page 20, 1st paragraph via "emergency navigation system", provided with:

a memory unit for storing predefined information (Page 20, 1st paragraph via "memory device"),

electronic processing means for processing the received information and comparing it in real time with predefined values (Page 20, 1st paragraph via "microprocessor"),

interfaces for receiving information from onboard systems and sending commands to an aircraft's autopilot to take over the control of the aircraft and return it to

predefined flight levels or spatial positions (Page 20, 1st paragraph via "navigation controller"),

suitable sensors for obtaining data on the aircraft onboard situation (Page 20, 1st paragraph via "flight data is measured"; Page 4, last paragraph via "sensors"),

communication system for transmitting the onboard situation in real time to a ground control station and receive from the ground control station, or from another aircraft, appropriate instructions when predetermined events occur, wherein the avionic unit is able to perform a collision avoidance function, to avoid collisions during aircraft flight, landing and take-off (Page 7, lines 22-30 disclose communications system receive data (appropriate instructions); Page 14, lines 1-7 disclose communications system transmit data; Fig. 2 discloses collision avoidance function is during aircraft flight, landing and take-off),

wherein the collision avoidance function defines

a monitoring stage, during which the avionic unit constantly compares the position of the aircraft with predefined and stored authorized limits (Page 23, lines 29-Page 24, line 1 via "during the flight of the aircraft, the actual flight parameters are constantly monitored, and compared. . . to the predefined flight data"), and

a control stage, during which, if the aircraft deviates from the authorized limits, the avionic system intervenes automatically on the autopilot, through said interfaces, to bring back the aircraft within its spatial limit (Page 25, lines 15-20), and

wherein the avionic unit is able to perform an alarm function, wherein the alarm function defines

a first, monitoring stage, during which information on the situation onboard the aircraft is stored in the memory unit and is not automatically transmitted to the ground control stations (Page 23, lines 29-Page 24, line 1 via "during the flight of the aircraft, the actual flight parameters are constantly monitored, and compared. . . to the predefined flight data"; Page 11, lines 21-29 "emergency navigation system provides one or more warnings to the pilot or authorized personnel prior to the emergency navigation system being activated. The warning allows the pilot to correct the deviation from the desired flight path, aircraft orientation, airspeed, and/or altitude prior to the emergency navigational system taking full or partial control of the aircraft." Note that Examiner construes when pilot correction occurs and the emergency navigation system does not take control, that no signal will be transmitted to a remote location, unlike the case when the system does take control as disclosed below), and

a second alarm stage which is activated in cases of alarm, during which the information generated onboard the aircraft by the avionic unit is transmitted to the ground control stations for appropriate evaluation (Page 14, lines 1-7 via "every warning by the emergency navigation system and/or every instance the emergency navigation system takes partial or full navigation control of the aircraft, a signal is transmitted to a remote location such as, but not limited to, an airport, air traffic control location. . .").

Turung et al. fail to explicitly disclose that during monitoring the information is stored in the memory unit.

However, it is notoriously well known in the art to store recorded data in a memory.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the avionic control system as disclosed by Turung et al. to store recorded data in its memory so that a complete flight log would be maintained.

Regarding claim 13, Turung et al. further discloses wherein said information relates to flight paths (Page 5, lines 1-2), world's runways (Page 23, lines 23-30), orography of the land (Page 17, lines 1-2) , obstacles and the predefined values comprise flight paths and altitudes or flight levels (Page 9, lines 11-14).

7. Claims 14-15 and 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turung et al. (WO 03/023322 A2) in view of Nelson (2004/0079837 A1).

Regarding claim 14, Turung et al. fail to disclose the aircraft sensors comprise surveillance video cameras and miniature transmitters, wearable by the flight Crew, in order to obtain information for the avionic unit.

However, Nelson discloses an avionic system (abstract) where sensors comprise surveillance video cameras and miniature transmitters ([0039] and [0042]; Note that Examiner construes the disclosure of onboard telephone constitutes a wearable, miniature transmitter).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the sensors in the avionic surveillance system as disclosed by Turung et al. to incorporate video cameras and transmitters as disclose by Nelson in order to visually monitor and transmit the on-board situation.

Regarding claim 15, Turung et al. fail to disclose wherein the video cameras comprise means for establishing whether they have been disabled, damaged, or are malfunctioning.

However, Nelson discloses an avionic system (abstract) wherein a video cameras comprise means for establishing whether they have been disabled, damaged, or are malfunctioning ([0039] via "cameras to remotely monitor" will indicate disablement, damage or malfunction when the remote party is no longer able to view).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the sensors in the avionic surveillance system as disclosed by Turung et al. to include videos that have means for establishing lack of disablement as disclosed by Nelson so that one could know when the on-board situation is no longer being monitored by video means.

Regarding claim 18, Turung et al. further disclose switches located in specific points of the aircraft available to crew and passengers to obtain information for the avionic unit, and a cockpit automatic locking system (Page 5, lines 8-13; Page 15, lines 1-3).

Regarding claims 19 and 21, Turung et al. further disclose a means for encrypting and coding the signals exchanged between the aircraft and the ground control station not interfering with the radio band communications (Page 8, lines 7-30).

Regarding claim 20, Turung et al. further disclose in the event of an emergency, means suitable for externally and/or automatically disabling the collision avoidance system in accordance to predefined rules (Page 3, lines 2-14; Page 5, lines 27-29).

Regarding claim 22, Turung et al. further disclose a ground control station suitable for interfacing with an avionic system comprising at least an avionic device, placed onboard an aircraft, with a memory unit, electronic processing means, interfaces, sensors, communication system (Page 20, 1st paragraph), wherein the avionic device is able to perform a collision avoidance function (Page 25, lines 15-20) and an alarm function (Page 11, lines 21-29 "emergency navigation system provides one or more warnings to the pilot"), the ground control station comprising:

processing data received from said avionic system (Page 14, first paragraph);

a transmission-reception system (Page 14, first paragraph);

an encrypting and/or coding system (Page 8, lines 7-30); and

communications system (Page 23, lines 7-8) and

collision avoidance function and alarm means (specified above for claim 1) occurs remotely (Page 16, 1st paragraph) and further that remote locations includes ground stations (Page 14, lines 1-7 via "a remote location such as, but not limited to, an airport, air traffic control location. . .")

Turung et al. fail to disclose that the transmission-reception system is a radio system, or that the communications system is audio-visual.

However, Nelson discloses an avionic system (abstract) that use radio systems in transmission-reception of signals and audio-visual in communications systems and a computer in a ground station ([0039]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the ground control station as disclosed by Turung et al. to include a computer, a radio system and audio-visual in its communication as is disclosed by Nelson to facilitate effective and reliable transmission and processing of data.

Neither Turung et al. nor Nelson explicitly disclose that during monitoring the information is stored in the memory unit or the use of computers in ground stations.

However, it is notoriously well known in the art to store recorded data in a memory and use computers to process data.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the avionic control system as disclosed by Turung et al. and Nelson to store the recorded data in memory and process data with a computer so that a complete flight log would be maintained and data handling would be feasible respectively.

Regarding claim 23, Turung et al. disclose a method for aircraft out of route management wherein there are provided an avionic system comprising at least an avionic unit, fitted onboard an aircraft, with a memory unit, electronic processing means,

interfaces, sensors, communication system, wherein the avionic unit is able to perform a collision avoidance function and an alarm function, and a ground station, a transmission-reception system, an encrypting and/or coding system, communications system and means for carrying out a collision avoidance and an alarm function, the method comprising the following steps:

defining first data for a collision avoidance function and loading said data into the avionic unit (Page 23, lines 29-Page 24, line 1 via “during the flight of the aircraft, the actual flight parameters are constantly monitored, and compared. . . to the predefined flight data”; Page 7, lines 12-Page line 6 disclose loading of data);

defining second data for an alarm function and loading said data into the avionic unit (Page 11, lines 21-29 via “emergency navigation system provides one or more warnings to the pilot or authorized personnel prior to the emergency navigation system being activated”; Page 7, lines 12-Page line 6 disclose loading of data);

defining third data for at least one ground control station and loading said data into the station (Page 14, lines 1-7);

defining interfaces (Page 20, first paragraph via “navigation controller”) ;

defining communication channels and their respective properties (Col. 8, lines 7-30 via "coding" constitutes a mode of transmitting data or a channel and a "specific key" constitutes a property of that channel);

defining sensors, transmitters, switches, and (Page 4, last paragraph via “sensors”; transmitters via Page 14, first paragraph; switches via Page 5, lines 8-13 and Page 15, lines 1-3).

determining operating logics of the collision avoidance function and their implementation in the avionic unit (Page 25, lines 15-20);

determining operating logics of the alarm function and their implementation in the avionic unit (Page 11, lines 21-29 “emergency navigation system provides one or more warnings to the pilot or authorized personnel prior to the emergency navigation system being activated. The warning allows the pilot to correct the deviation from the desired flight path, aircraft orientation, airspeed, and/or altitude prior to the emergency navigational system taking full or partial control of the aircraft.”);

determining operating logics of the ground control station and loading them into the station (Page 16, 1st paragraph and Page 14, lines 1-7 via “a signal is transmitted to a remote location such as, but not limited to, an airport, air traffic control location. . .”);

comparing the position of the aircraft constantly with predefined and stored authorized limits intervening automatically on the autopilot to take the aircraft to its spatial limit through the interfaces when the aircraft deviates from the authorized limits (Page 23, lines 1-5); and storing the situation of the aircraft onboard and not automatically transmitting to the ground control stations (Page 20, 1st paragraph via "data that is measured and/or *recorded*." (emphasis added)).

transmitting said information generated onboard to the ground control stations for appropriate evaluation when a second alarm state is activated in cases of alarm (Page 14, lines 1-7 via “every warning by the emergency navigation system and/or every instance the emergency navigation system takes partial or full navigation control of the aircraft, a signal is transmitted to a remote location such as, but not limited to, an

airport, air traffic control location. . .”; Note Examiner construes the "second alarm state” to occur after the alarm function giving the pilot the opportunity for correction elapses without correction occurring, and thus transmission to the ground station takes place).

Turung et al. fail to explicitly disclose that the transmission-reception system is one that is radio or that the communications system is audio-visual or that the video-cameras are included.

However, Nelson discloses the radio systems in transmission-reception of radio signals, audio-visual in communications systems and video cameras ([0039] and [0023]-[0025]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the ground control station as disclosed by Turung et al. to include operate radio waves, use audio-visual and video cameras in its sensing as disclosed by Nelson so to facilitate effective and reliable transmission and processing of data.

Neither Turung et al. nor Nelson explicitly disclose that during monitoring the information is stored in the memory unit or the use of computers in ground stations.

However, it is notoriously well known in the art to store recorded data in a memory and use computers to process data.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the avionic control system as disclosed by Turung et al. and Nelson to store the recorded data in memory and process data with a computer so

that a complete flight log would be maintained and data handling would be feasible respectively.

Regarding claim 24, wherein the electronic processing means process receive information and compare it in real time with data referring to predefined flight paths and allowed altitudes or flight levels, and wherein the interfaces receive flight information from onboard systems and send commands to the aircraft's autopilot to take over the control of the aircraft and bring it back to predefined altitudes or flight levels or spatial positions, and wherein sensors obtain data on the situation onboard the aircraft (Page 7, lines 22-27), and

wherein the communication means and the connecting interfaces transmit information relating to onboard situation in real time to ground control stations and receive appropriate instructions from the ground control station or from another aircraft when predetermined events occur (Page 14, lines 1-7 via “every warning by the emergency navigation system and/or every instance the emergency navigation system takes partial or full navigation control of the aircraft, a signal is transmitted to a remote location such as, but not limited to, an airport, air traffic control location. . .”).

8. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turung et al. (WO 03/023322 A2) in view of Nelson (2004/0079837 A1), and further in view of Schminke (4,860,763).

Neither Turung et al. nor Nelson disclose the sensors comprise heart rate monitors for the pilots to be connected to the avionic unit.

However, Schminke discloses it is old and well known in the art to employ heart rate monitors as sensors in the field of avionics (Col. 4, lines 49-66).

Therefore, it would have been obvious to modify the avionics control system as disclosed by Turung et al. and Nelson to monitor heart rates as disclosed by Schminke so that a non-response or over-anxious pilot could be anticipated.

Regarding claim 17, Turung et al. further discloses means for encrypting and coding the signals exchanged between the aircraft and the ground control station not interfering with the radio band communications (Page 8, lines 7-30).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Tart et al. (2003/0055564 A1) disclose a flight aircraft control system for preventing colliding with designated man-made structures.

Murray et al. (5,361,212) discloses an alternate destination planner for searching a navigation database in an aircraft.

Class et al. (5,361,212) disclose a differential GPS landing assistance system employing glide points.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIKHIL SRIRAMAN whose telephone number is (571)270-5797. The examiner can normally be reached on Monday through Friday, 7:30am-5:00pm, with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NIKHIL SRIRAMAN
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